

described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor at the time the application was filed had possession of the claimed invention and for allegedly being non-enabling. The Office Action further alleges that Claims 45-49, 51-84, 96, 181 and 203-248 conflict with Claims 57-63 and 68-87 of copending application Serial No. 08/486,669. Moreover, the Office Action has provisionally rejected Claims 45-49, 51-84, 96, 181 and 203-248 under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over Claims 57-63 and 68-87 of copending application No. 08/486,699. Finally, Claims 45-49, 51-84, 96, 181 and 203-248 are rejected under 35 U.S.C. §103 as defining subject matter which is allegedly rendered obvious over an article in Chemical Physics Letter, 1990, 167-170 ("Kratschmer, et al.") in view of U.S. Patent No. 3,094,428 to Hamilton, et al. ("Hamilton, et al.") and an article by Kargin, et al. in the Colloid Journal of the USSR, 1967, 29, 256-259 ("Kargin, et al.").

In response thereto, applicants are submitting the following comments which are deemed to place the present case in condition for allowance. Favorable consideration is respectfully requested.

The Office Action has rejected Claims 45-49, 51-84, 96, 181, 203-248 under 35 U.S.C. §112, second paragraph for various reasons. According to the Office Action, in Claims 45, 181 and 233-234 and claims dependent therefrom, it is unclear

as to how much "constitutes amounts capable of being extracted in 'solid' form". The Office Action alleges that it does not provide a lower limit.

Applicants disagree. The language in these claims connotes that the C₆₀ being formed is in amounts that could be seen with the human eye. The claims connote this amount in functional language by reciting that the C₆₀ is present in amounts capable of extracting C₆₀ from the soot in solid form and that it is recovered as a solid. This is the intent of the language utilized. Applicants submit that the presence or absence of sufficient material to be visible as a solid is a characteristic that is easily determinable.

However, the Office Action alleges that such a limitation is indefinite, and specifically asks that if ... a microgram of C₆₀ was an amount needed to qualify as solid C₆₀, would a process which produced a kilogram of soot which in toto contained microgram C₆₀ ... be within the claims...?" In addition, the Office Action alleges that the language is indefinite for it does not specify the lower limit. The Office Action's comments are without merit. Case law had held that lower limits need not be recited to be in compliance with 35 U.S.C. §112, second paragraph. In re Kirsch, 498 F.2d, 1389, 1393-1394, 182 USPQ 286, 290 (CCPA 1974). Furthermore, and more importantly, the lower limit is that which is visible to the eye! How can anything be more definite than visible versus not visible? From the beginning of time, man has relied upon

his senses to determine if something is present. The amount of C₆₀ and/or C₇₀ produced by the process of the present invention is in macroscopic amounts, amounts which are easily discernible by the human eye. The objective test is whether visible amounts, that is, amounts sufficient to see, and touch of C₆₀ and/or C₇₀ are recovered. Thus, there is no indefiniteness in the amount produced.

The same argument is also applicable to the rejection of Claims 83, 84 and 222.

With respect to the rejection of Claims 83, 84, and 222, the Office Action alleges that the language, "amount (or quantities) (of C₆₀) sufficient to be capable of producing a colored solution when extracted with sufficient (or effective) amounts to benzene" is unclear. Applicants disagree for the same reasons as hereinabove. This language connotes that sufficient (C₆₀ or C₇₀) is present so that when dissolved in a non-polar organic solvent, such as benzene, the non-polar organic solvent will become colored. Again, this is an objective test of whether appreciable amounts of C₆₀ and/or C₇₀ are formed. If the benzene solution remains uncolored when the soot comprising C₆₀ and C₇₀ is placed into sufficient benzene to dissolve the C₆₀ and/or C₇₀, then insufficient amounts of product are generated; on the other hand, if the benzene solution becomes colored, then sufficient amount of C₆₀ or C₇₀ is generated. The U.S.P.T.O. raises the issue that this is indefinite; however, the test is color versus no color, i.e.,

something which is easily determinable and discernible, and which is an objective rather than subjective standard.

In both situations, the U.S.P.T.O. has failed to consider the history regarding fullerenes. Heretofore, no one had generated enough fullerenes, such as C₆₀, to be seen with the naked eye, or as indicated in Curl, et al., in Scientific American, 1991, Page 55, when dissolved in benzene produced a colored solution. Others heretofore could not generate sufficient amounts of C₆₀ to obtain a colored solution. For example, when Smalley, et al. placed the soot they produced in benzene, the solution remained clear and the black soot sat on the bottom of the liquid. Id. However, the methodology of the present process produces such appreciable amounts of C₆₀ and/or C₇₀ that they can be visibly seen and they produce a colored solution when the entire product of C₆₀ and/or C₇₀ extracted from the soot is placed into benzene. Not only does this distinguish over the prior art, but as indicated hereinabove, these are simple tests to easily ascertain whether the requisite amount of product is produced.

The Office Action appears to have misinterpreted the claims; it utilizes as the standard the amount of sooty carbon product produced which when placed into benzene forms a colored solution. The claims do not use this as the criteria, since the soot goes to the bottom of the liquid. The color is formed when sufficient amounts of C₆₀ and/or C₇₀ are present in the soot sample. Thus, if a colored solution is produced under

these circumstances then it meets the test recited in Claims 83, 84 and 222.

The Office Action has rejected Claim 234 and those dependent therefrom, alleging that the term "discernible" is indefinite. Applicants disagree. The term "discernible" is not an ambiguous term but connotes that the product is capable of being detected with the eyes or other senses. Applicants are using the term in its normal everyday meaning. See the definition of "discern" and "discernible" from Webster's New Collegiate Dictionary, p. 360, submitted herewith. Again, just as described hereinabove, the claims connote that the product is being formed in amounts that could be detected by one's senses. Again, for the reasons given hereinbelow, this language is unambiguous.

Finally, the Office Action alleges that Claims 204, 213, 222 and 230 and those dependent therefrom and 45 and 232 are indefinite alleging that the extraction language utilized a means plus function encompassed by 35 U.S.C. §112, sixth paragraph and that the specification fails to set forth the equivalents thereto, citing in In re Dossel, 115 F.3d 942, 42 USPQ 2d 1881 (Fed. Cir. 1991). Throughout this rejection, the Office Action has cited In re Dossel, alleging that it holds that the claims fail to comply with 35 U.S.C. §112 second paragraph, for it does not provide equivalents to the alleged function limitation recited in the claim therein.

Applicants respectfully disagree with the Office Action's interpretation of In re Dossel. First, all that In re Dossel holds that even though 35 U.S.C. §112, sixth paragraph, provides that one may use means-plus function in a claim, the specification must still comply with 35 U.S.C. §112, first and second, paragraphs. Id. With respect to the second paragraph requirement, the specification must set forth an adequate disclosure of what is meant by the language. Id. Failure to describe adequately the necessary structure, material, or acts in the written descriptions means that the applicant has failed to comply with 35 U.S.C. §112, second paragraph. Id. Contrary to the allegations in the Office Action, it does not hold that the applicants must recite "equivalents" for this language. In fact, In re Dossel, cites with approval, In re Donaldson, 16 F.3d 1189, 29 USPQ2d 1845, (Fed. Cir. 1994) which held that when in a means plus function language is utilized, it is the responsibility of the United States Patent and Trademark Office to construe the means plus function language by looking to the specification for structures and their equivalents. Id. This requires construing a limitation already in the means plus function clause by properly referring to the specification for the meaning of a particular word. Thus, applicants submit that the United States Patent and Trademark Office has not applied In re Dossel, properly.

Moreover, contrary to the allegation by the United States Patent and Trademark Office especially with respect to the rejection of the various claims, the specification adequately describes the extraction step in compliance with 35 U.S.C. §112, second paragraph. Attention in this regard is directed to Page 5, Line 9 to Page 7, Line 17 of the instant specification, which describes methods for extracting, i.e., removing C₆₀ from the soot, e.g., by dissolving the soot in a non-polar solvent and by sublimation. Thus, based on the teachings therein, it is clear that the language connotes removal of the C₆₀ and/or C₇₀ product from the soot. Utilizing the methodology of the present invention, a macroscopic amount of C₆₀ is present in the soot. Thus, contrary to the allegations in the Office Action, the metes and bounds of the extraction language utilized in the claims is clearly understood, in compliance with the requirements of 35 U.S.C. §112, second paragraph. Thus, the use of the language therein is not indefinite, as alleged by the United States Patent and Trademark Office.

Thus, for the reasons provided, the rejection of the claimed subject matter under 35 U.S.C. §112, second paragraph, is obviated. Withdrawal thereof is respectfully requested.

Pursuant to the rejection of Claims 45-49, 51-82, 203 and 232 under 35 U.S.C. §112, first paragraph, the Office Action alleges that the specification does not have descriptive support for this term "macroscopic".

Applicants strongly disagree.

With respect to the description requirement, there is adequate support in the application for the term "macroscopic". Literal support is not necessary for compliance with the description requirement as long as the application conveys the concept to the skilled artisan. This the application adequately does. More specifically, support for this term and concept permeates the specification. For example, attention is directed to Page 7, Lines 10-25, and to Example 1 of the instant specification wherein it is specified that the C₆₀ product is obtained as a powder and wherein the color of the product produced therefrom is indicated. Furthermore, in the passage, attention on Page 7, Lines 10-25 the specification describes that when the sooty product is placed into a non-polar solvent, e.g., benzene, the benzene became colored and the product produced after extraction with the non-polar solvent is colored. Obviously, one cannot determine these characteristics unless it is present in amounts that can be seen with the naked eye, i.e., macroscopic amounts. For example, if less than macroscopic amounts were produced, no color would be seen. See, Curl, et al, Scientific American 1991, 54-55. Furthermore, attention is directed to Figure 2, of the instant specification wherein a X-ray diffraction pattern is provided of a product produced in accordance with the present invention. As the skilled artisan is well aware, macroscopic quantities had to be available to generate a X-ray

diffraction of the product. In addition, attention is directed to Page 11, Line 30 of the instant specification wherein it is indicated that the IR is taken of an approximately two micrometer thick C₆₀ coating on a silicon substrate. Especially since C₆₀ is colored, it is obvious that this coating had to be seen with the naked eye. Furthermore, the application makes additional references to characteristics of the product that can only be discernible if the material is present in macroscopic amounts. For example, the application describes that the product produced by sublimation of the carbon soot can range from a uniform film to a coating, and the color is brown to gray depending on the thickness of the coat formed, while the product obtained from extraction is a dark brown to black crystalline material. Obviously, these characteristics can be differentiated if the product was produced in amounts that can be seen with the human eye. In addition, on Page 2, Line 13, the application states that before the prior invention, no one had made C₆₀ or C₇₀ in appreciable amounts. The implication is that the present inventors were successful in achieving this goal, consistent with the teachings in the application. Appreciable by definition means "enough to be perceived", See Webster Unbridged Dictionary 2nd Ed. p. 91 (1983). Thus, appreciable is synonymous with "macroscopic".

It is important to keep in mind that which was not stated; if the products produced can only be detected through

instrumentation, such representation would have been made in the application and evidence supporting same such as electron micrographs would have been provided. In fact, the application acknowledges that C₂₄₀ was observed from a scanning tunneling microscopic image. The fact that such statements were not made and such evidence was not provided with respect to C₆₀ and C₇₀, for example, is further evidence that these products were formed in macroscopic amounts.

Case law has held that the description requirement is met if the application conveys to the skilled artisan that the applicants have possession of the invention at the time of the filing of the application. Vas Cath Inc. v. Mahurkar, 935 F.2d 1535, 19 USPQ2d 1111 (Fed. Cir. 1995). In other words, the applicant must convey with reasonable clarity to the skilled artisan that as of the filing date he or she was in possession of the invention. Vas Cath Inc., 935 F.2d at 1563-64, 19 USPQ 2d at 1117. Attention is directed to the Kroto Declaration previously submitted, Paragraphs 14 and 15, in which he attests that the application adequately describes the method for making macroscopic amounts of fullerenes, such as C₆₀ and C₇₀, and that based upon the teachings in the application, it is his opinion that the inventors had in their possession at the time of the filing of the application macroscopic amounts of same.

(Emphasis added). Kroto, who is a skilled artisan in the field, understood from reading the application that the applicants had made macroscopic amounts of fullerenes and had

it in their possession at the time of the filing of the application, providing further evidence that there is adequate support in the specification for the term "macroscopic". Since a skilled artisan testified that the application describes the production of fullerenes, such as C₆₀, in macroscopic amounts, how can the United States Patent and Trademark Office ignore or dismiss such a statement. Case law had held that if a person of ordinary skill in the art would have understood from reading the specification that the inventor had possession of the claimed invention at the time of filing the application, then the written description required by 35 U.S.C. §112, first paragraph, is met. In re Alton, 76 F.3d 1168, 37 USPQ2d 1578 (Fed. Cir. 1996). Since Dr. Kroto so testified, then the written description requirement is met. Id.

Thus, the application fully complies with the description requirement of 35 U.S.C. §112, first paragraph.

In addition, the specification fully complies with the enablement requirement of 35 U.S.C. §112, first paragraph, and adequately teaches one skilled in the art how to make the claimed invention without an undue amount of experimentation. The specification provides the general teaching to the skilled artisan of how to prepare C₆₀ and C₇₀ in macroscopic amounts. If the skilled artisan follows the procedure described in the specification, macroscopic amounts of material would be produced. Attention is again directed to the Declaration of Kroto, paragraphs 3, 8 and 15, wherein he attests that the

application adequately describes how to make fullerenes, including C₆₀ and C₇₀, in macroscopic amounts. Contrary to the allegations in the Office Action, case law does not require the applicant to describe in their specification every conceivable embodiment of the invention. US v. Telelectronics, 857 F.2d 778, 786, 8 USPQ 2d 1217, 1222 (Fed. Cir. 1988) (citing SRI Int'l v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1121, 227 USPQ 577, 586 (Fed. Cir. 1985)). It is not therefore necessary to specifically exemplify that tonnage quantities can be made in accordance with the present process. The specific teachings and exemplification in the specification provide an adequate teaching to accomplish this objective without an undue amount of experimentation. Again, it is improper for the United States Patent and Trademark Office to ignore the testimony of Dr. Kroto, a skilled artisan, who testified that the application adequately describes to the skilled artisan how to make macroscopic amount of C₆₀.

In the rejection, the Official Action states that the original language of the specification is enabling for the production of C₆₀/C₇₀ in quantities sufficient to produce coatings that are 2 microns thick. This amount produced is described in Ex. 1, and is only exemplary of the amount of product that could be produced by the present process. By making such an admission, the Office is implicitly agreeing that the specification is enabling for making macroscopic amounts of the product, since the product prepared in Example 1

was sufficient to be seen for the reasons given hereinabove. Unfortunately, the United States Patent and Trademark Office is utilizing an engineering issue involving "scaling up" to support its allegation of lack of enablement. This is contrary to case law. There is nothing in the law which requires the applicants to scale up in the application the "amount" of products prepared by their process. This is an inappropriate basis for supporting an allegation of non-enablement. Even if some experimentation is required, case law has held that if the amount of experimentation is not duly extensive, the specification is still enabling. U.S. v. Telecommunications, Inc., 857 F.2d 778, 8 USPQ2d 1217 (Fed. Cir. 1988), cert denied, 490 US 1046 (1989). Applicants submit that based upon the teachings in the specification, an undue amount of experimentation is not required to produce larger amounts of C₆₀. For example, based upon the teachings, the skilled artisan can scale up the amount of product produced in Example 1 without an undue amount of experimentation. For example, if a greater amount of elemental carbon were used, additional material would be collected. Moreover, if the exact methodology in Ex. 1 were repeated an infinite amount of times, there can be no question that an infinite amount of material would be collected. Dr. Kroto understood that undue amount of experimentation was not required to prepare macroscopic amounts of C₆₀ and C₇₀, based upon his reading of the specification, why can't the United States Patent and Trademark Office? Thus, it

is absurd for the United States Patent and Trademark Office to state that the application is not enabling for the larger quantities of product to be produced.

Thus, the application is enabling for the subject matter claimed. Therefore, the rejection of the claims under 35 U.S.C. §112, first paragraph, is obviated, and withdrawal thereof is respectfully requested.

Thus, the specification complies with the requirements of 35 U.S.C. §112, first and second paragraphs.

Withdrawal of these rejections is respectfully requested.

With respect to another rejection of Claims 45-49, 51-84, 96, 181, 203-231, the Office Action cites 37 C.F.R. §1.78(b) in support of its rejection that these claims conflict with Claims 57-63 and 68-87 of the '669 application. The Office Action requests Applicants to either cancel the conflicting claims or to maintain a clear line of demarcation between the applications.

This is an improper rejection since there is no statutory basis for the rejection. Nevertheless, there is a line of demarcation between the claimed subject matter in the present application and the claims in copending application USSN 08/486,669. The present case is directed to the preparation of C₆₀ and or C₇₀ or products containing same, while the copending application is directed to the preparation of

fullerenes and/or products containing same. Thus, there is a clear line of demarcation between the applications.

The Office Action maintains that to constitute a clear line of demarcation, it is necessary that the claims in the application be patentably distinct. This of course, is contrary to practice and case law. Although applicants believe that the claimed subject in the applications are directed to patentably distinct inventions, this is not the standard. For example, attention is directed to MPEP §806.04 (i), which permits an application directed to a genus to issue even after the application to a species issues. Thus, it is permissive to have one application directed to a species and another application directed to a genus, as in the present circumstances. Thus, the rejection of the claims under 37 C.F.R. §1.78(b) is improper, and withdrawal thereof is respectfully requested.

Pursuant to the provisional rejection of Claims 45-49, 51-84, 96, 181 and 203-248 under the judicially created doctrine of obviousness-type double patenting, the Office Action cites Claims 57-63 and 68-87 of copending application USSN 08/486,669.

Since the claims in neither application has been patented, it is premature to reject the claims on this ground at this time, especially since these may not be the final version of the claims. When one of the applications matures

into a patent, then it would be the appropriate time to raise this issue.

In addition, applicants further submit that the provisional double patenting rejection is not applicable in the present circumstances.

In considering the question of obviousness-type double patenting, only the claims of the two applications are compared. Quad Environmental Technologies, Corp. v. Union Sanitary District, 946 F.2d 870, 873, 20 U.S.P.Q. 2d 1392, 1394. The question to consider is whether any claims in the two applications define merely an obvious variation of an invention disclosed and claimed. In re Vogel, 442 F.2d 438, 441, 164 U.S.P.Q. 619, 622 (CCPA 1970).

The Office Action alleges that the claims are not patentably distinct from each other because the respective claims only differ in the functional recitation of how much "C₆₀ fullerene" is made in the carbon vaporization process. It further alleges that the subject matter in both applications is directed to the production and recovery of "C₆₀ fullerenes". However, applicants respectfully submit that the claims in the two applications do not differ in the manner alleged in the Office Action. The present application is directed to a process of making C₆₀ and/or C₇₀ in macroscopic amounts, while the '669 application is directed to the process of making fullerenes in macroscopic amounts. The subject matter of the present application is thus not directed to the same patentable

invention as that claimed in the copending '669 application. Consequently, the rejection of the claimed subject matter on these grounds is obviated, and withdrawal thereof is respectfully requested.

Pursuant to the rejection of Claims 45-49, 51-84, 96, 181 and 203-248, the Office Action cites Kratschmer, et al. in view of Hamilton et al. and Kargin, et al.

Kratschmer, et al. describe a process of preparing carbon smoke particles by evaporating graphite rods by resistive heating in a conventional glass bell evaporator filled with an inert quenching gas such as helium at pressures greater than, for example, 100 Torr. It also discloses collecting the smoke. The article postulates that C₆₀ may be present in the smoke. But, in contrast with the present invention, the reference does not teach, disclose or suggest how to extract the C₆₀ from the soot. Thus, the reference never separated the C₆₀ from the soot.

The Office Action admits that Kratschmer, et al. never taught how to extract the alleged C₆₀ in the soot. Thus, it cites Hamilton, et al. and Kargin, et al. in an attempt to overcome this deficiency.

According to the Office Action, Kargin, et al. disclose that carbon particles made from the condensation of carbon vapor in an argon atmosphere can be deemed to be carbon black. The Examiner further alleges that the carbon particles were prepared from a graphite anode and cathode opposed to one

another, wherein a plasma is formed therebetween by passing current to the electrodes. The Office Action then cites Hamilton, et al., alleging that it discloses that carbon black is dispersed in benzene to form ink compositions. The Office Action concludes that it would have been obvious to have dispersed the carbon smoke particles of Kratschmer, et al. in benzene because Hamilton, et al. "teach that it is known to disperse carbon black in benzene in order to form ink compositions or rubber compositions and because Kargin, et al. would teach...to recognize Kratschmer's particle as being carbon black."

However, applicants respectfully submit that the United States Patent and Trademark has not made out a prima facie case of obviousness. Although both Hamilton, et al. and Kargin, et al. discloses processes involving carbon black, neither of these references teach or disclose a process for making C₆₀ and/or C₇₀, or involving C₆₀ or C₇₀, as presently claimed or as allegedly described in Kratschmer, et al. Thus, there is no suggestion in the prior art references to combine the secondary references with the article by Kratschmer, et al. in the manner suggested by the United States Patent and Trademark Office. Absent some teaching, suggestion or incentive supporting the combination, case law had held that obviousness cannot be established. A.C.S. Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 USPQ 929 (Fed.

Cir. 1984). Consequently, applicants submit that the 35 U.S.C. §103 rejection is improper and should be withdrawn.

Moreover, applicants submit that Kratschmer, et al. is not a proper reference because the In re Katz Declaration of Dr. Kratschmer dated September 10, 1997 clearly establishes that the Kratschmer, et al. article is not the work of another; thus, as held in In re Katz, 687 F.2d 450, 215 USPQ 14 (CCPA), Kratschmer, et al. cannot be used in a reference to reject the claimed subject matter. Consequently, it is improper to use it in combination with Hamilton, et al. and Kargin, et al. to reject the claimed subject matter.

The Office Action indicated that the Kratschmer Declaration was ineffective to overcome the rejection, relying on certain hearsay passages in a book entitled "Perfect Symmetry: The Accidental Discovery of Buckminster fullerene" by Jim Baggott ("Baggott"). More specifically, the Office Action directs applicants attention to Pages 138-139 of Baggott, which according to the Office Action, suggests that Fostiropoulos "innovated in the matter of fabrication and use of carbon-13 rods" and Page 150 which the Office Action suggests that "Fostiropoulos innovated in the matter of sublimation of various C₆₀ films". The Office Action alleges that Baggott presents rebuttable evidence that Fostiropoulos is a co-inventor and it thereby rejects the statements in the Kratschmer declaration that Fostiropoulos is not an inventor of

the subject matter in the application or in the article
(Paragraphs 6 and 9 of Kratschmer Declaration).

What the United States Patent and Trademark Office has conveniently overlooked was that the statements in Baggott are hearsay, pure and simple. The Office Action is relying upon these statements in Baggott for the truth of the matters asserted, but as the author admits, he was not present in Kratschmer's laboratory at the relevant time when the events reported upon were occurring. Even Baggot admits that he is only a reporter trying to assimilate the information:

I have put together my description of the events in Heidelberg and Tucson from December 1985-September 1990 from a combination of personal interviews with Kratschmer, Fostiroopoulos, and Huffman, telephone conversations with Lamb, letters from Kratschmer and Fostiroopoulos and published accounts.

Id., Page 271.

In other words, Baggott is acting as a sieve -- a filter, so to speak. Based upon the various sources, he is providing his interpretation and his viewpoints of the facts and reporting thereon. However, he has no personal knowledge of the events that occurred. Furthermore, the statements therein are not made under oath and are not sworn testimony. Thus, as an evidentiary matter, very little weight should be given to his statements.

On the other hand, the statements made by Kratschmer was made by a person who has personal knowledge of the events that occurred at the relevant time. He was there. The events

occurred in his laboratory. Thus, his testimony should be given considerably more weight, especially since his statements are given in a Declaration with a penalty attached thereto if statements were made with the knowledge that they were willful and false.

Just as in In re Katz, the United States Patent and Trademark Office is ignoring the statements in the Declaration. Specifically, it is ignoring the following statements:

6...It is my opinion that ... he [Fosttiropoulos] is not an inventor of the subject matter described and claimed herein...

8. Although K. Fosttiropoulos performed experiments described in the article, those experiments described therein which he performed were conducted under my direction and supervision.

9. It is my opinion that ... K. Fosttiropoulos is not an inventor of the subject matter described in the publication.

These statements are not surplus, but have real meaning. As the Court stated in In re Katz.

In the declaration, appellant provides the explanation that the co-authors of the publication, Chiorazzi and Eshhar, "were students working under the direction and supervision of the inventor, Dr. David H. Katz." This statement is of significance since it provides a clear alternative conclusion to the board's inference that their names were on the article because they were coinventors. As acknowledged by the examiner, the names of individuals may be given as authors of a scientific report who are "involved only with assay and testing features of the invention." Appellant's explanation is, thus, consistent not only with the content of the article but with the nature of the publication. On the record here, the board should not have engaged in further speculation as to whether appellant's view was shared by his co-authors but

rather should have accepted that Chiorazzi and Eshhar were acting in the capacity indicated, that is, students working under the direction and supervision of appellant. From such a relationship, joint inventorship cannot be inferred in the face of sworn statements to the contrary.

The Office Action alleges that the Declaration is defective alleging that, "Declarant appears to be ascribing the basis for concluding that co-author Fostiroopoulos was not a co-inventor, from a source who is neither a Declarant nor a co-author, namely Applicants' counsel." The Office Action further questions the standard used by applicant's attorney in reaching that conclusion.

It is respectfully submitted that the United States Patent and Trademark Office has misinterpreted the statements of declarant. Declarant specifically stated it is his opinion that Fostiroopoulos is not a co-inventor and that his counsel legally agrees with that conclusion.¹

In addition, the passages referred to in the Office Action are not inconsistent with the statements in the Kratschmer Declaration. For example, the Office Action appears to be basing its opinion that Fostiroopoulos is an inventor from its interpretation of the following passage on Page 150 of Baggott:

¹ The United States Patent and Trademark Office has read more into that statement than was there and is unjustifiably connoting that counsel would be using standards other than those of 35 U.S.C. §116 and case law based on same without any proof. This is totally improper.

Very late one night in early May, Fostiropoulos placed a little of the soot and a thin quartz substrate in a glass tube. He then filled the open tube with argon, which forced out the air above the soot. He heated the bottom of the tube with the naked flame of a Bunsen burner. At first, the substrate did not appear to have changed: he could see no sign of a coating. But as he looked more closely, he noticed that the reflected light from the surface of the substrate did appear different: something had been deposited.

He was extremely tired, but nothing was going to keep him from measuring the spectrum. He placed the substrate in the ultra-violet/visible spectrometer and set the machine to scan the wavelength. He watched the recording pen intently as it moved over the chart paper and, for the second time in his life he felt the electric thrill of scientific discovery. There they were, three of the strongest, most beautiful camel humps he could ever wish to see. Gone, or at least significantly reduced, was the background absorption due to ordinary carbon soot. The sublimation process had worked: it really was that easy. He was the first person in the world to see the ultra-violet spectrum of almost pure buckminsterfullerene.

Fostiropoulos left the spectrum on Kratschmer's desk and headed home. It was time for sleep.

However, that passage is not inconsistent with the statement that Fostiropoulos worked under the supervision and control of Dr. Kratschmer in paragraph 8 of the Declaration. Putting the facts in perspective and context of the Declaration, one would conclude that this sublimation experiment was conducted pursuant to the instructions of Dr. Kratschmer. Does the United States Patent and Trademark Office expect that the advisor for the Ph.D. student would necessarily be performing the Ph.D. students' laboratory work? Does the

United States Patent and Trademark Office expect the advisor to be present when a Ph.D. student performs his experiment? This is not the norm. The advisor outlines the procedure for the Ph.D. student to follow, making the student an extra pair of hands for the advisor. The Ph.D. student performs the experiment, and after the experiment is concluded, the results are discussed with the advisor. That quoted passage does not preclude that possibility. There is nothing in the passage that would necessarily lead to a conclusion that the procedure described in the above passage was Fostiroopoulos' idea. However, the United States Patent and Trademark Office is reading more into Baggott than is really there. The United States Patent and Trademark Office appears to be reading the passages in Baggott through rose colored glasses, purposely interpreting the facts so that they are inconsistent with the statements of Kratschmer but without any suggestion in the art for it to reach that conclusion. This is improper.

The same conclusion is reached with respect to the passage referred to on Pages 138-139. The Office Action is assuming facts; although Fostiroopoulos may be the one physically building the apparatus, this again does not necessarily imply that the apparatus was not built under the direction and supervision of Dr. Kratschmer. The passage is completely silent as to this issue and there is no reason, based on the passage, to conclude otherwise.

Thus, the United States Patent and Trademark Office has not met its burden and found any evidence contradicting the statements in the Kratschmer Declaration. Thus, contrary to the allegations in the Office Action, Baggott does not present evidence that Fostiroopoulos is more than a mere co-author. Thus, the argument in the Office Action distinguishing In re Katz, is not correct. Just as in In re Katz, there is ambiguity created on the record. "The article does not tell us anything specific about inventorship". In re Katz, 687 F.2d at 455, 215 USPQ at 18. Neither does Baggott. Fostiroopoulos cannot be presumed to be a co-inventor merely from the statements of Baggott; just because Fostiroopoulos performed certain experiments, does not necessarily mean he is an inventor. Thus, the only facts on this issue comes from the Kratschmer declaration. The Office Action thus has not made out a prima facie case of co-inventorship of Fostiroopoulos. Therefore, contrary to the allegation in the Office Action, the holding of In re Katz is applicable.

Thus, the record is consistent with the authors of the article being Kratschmer and Huffman. Therefore, the article is not an invention of another. Pursuant to the holding in In re Katz, it cannot be used as a reference against the present application.

Thus, for the reason given herein, the rejection of the claimed subject matter under 35 U.S.C. is obviated. Withdrawal thereof is respectfully requested

Therefore, in view of the Remarks herein, it is respectfully submitted that the present case is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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dis-bar \dis-'bär\ vt (1633) : to expel from the bar or the legal profession : deprive (an attorney) of legal status and privileges — dis-bar-ment \mən't\ n

dis-belief \dis-bē'lif\ n (1672) : the act of disbelieving : mental rejec-tion of something as untrue

dis-be-lieve \-'lēv\ vi (ca. 1604) : to hold not to be true or real ~ vi: to withhold or reject belief — dis-believer \-'lēv-er\ n

dis-bud \('dis-'bod\ vt (1727) 1: to thin out flower buds in order to improve the quality of bloom of 2: to dehorn (cattle) by destroying the undeveloped horn bud

dis-bur-den \('dis-'bôrd-n\ vt (1531) 1 a: to rid of a burden (~ a pack animal) b: UNBURDEN (~ your conscience) 2: UNLOAD (~ed their merchandise in the town square) ~ vi: DISCHARGE (the vessels ~ed at the dock) — dis-bur-den-ment \mən't\ n

dis-burse \dis-'bôrs\ vt disbursed; dis-burs-ing [MF *desbourser*, fr. OF *desbors*, fr. *des-* + *bors* to get money, fr. *borse* *bourse*] (1530) 1 a: to pay out: expend esp. from a fund b: to make a payment in settlement of: DEFRAUD 2: DISTRIBUTE (~ property by will) — dis-burser \-'bôr-sîr\ n

dis-bur-se-ment \-'bôr-smənt\ n (1596) : the act of disbursing: also: funds paid out

disc war of DISK

disc- or disc- or disco-comb form [L, fr. Gk *disk-*, *disko-*, fr. *diskos*] 1: disk (dangerous) 2: phonograph record (discophile)

dis-calced \('dis-'kalst\ adj [part trans. of L *descalceatus*, fr. *dis-* + *calceatus*, pp. of *calceare* to put on shoes, fr. *calcus* shoe, fr. *calc-*, *calx* heel — more at CALK] (1631): UNSHOD, BAREFOOT (~ friars)

dis-cant \dis-'kant\ var of DESCANT

dis-card \dis-'kârd\ vt (1591) 1 a: to remove (a playing card) from one's hand b: to play (any card except a trump) from a suit different from the one led 2: to get rid of: esp. as useless or unpleasant ~ vi: to discard a playing card — dis-card-able \-'sôb'l\ adj — dis-car-dee \-'kârd\ n

syn DISCARD, CAST, SHED, SLOUGH, SCRAP. JUNK mean to get rid of. DISCARD implies the letting go or throwing away of something that has become useless or superfluous though often not intrinsically valueless; CAST, esp. when used with off, away, and out, implies a forceful rejection or repudiation; SHED and SLOUGH imply a throwing off of something both useless and encumbering and often suggest a consequent renewal of vitality or luster; SCRAP and JUNK imply throwing away or breaking up as worthless in existent form.

dis-card \('dis-'kârd\ n (1744) 1 a: the act of discarding in a card game b: a card discarded 2: one that is cast off or rejected

dis-car-nate \dis-'kär-nat, -näit\ adj [*dis-* + *carnate* (as in incarnate)] (1895): having no physical body: INCORPORAL

disc brake \n (1904) : a brake that operates by the friction of a caliper pressing against the sides of a rotating disc

discern \dis-'ärn, -ärz\ vb [ME *discernen*, fr. MF *discerner*, fr. L *discernere* to separate, distinguish between, fr. *dis-* apart + *cernere* to sift — more at DIS- CERTAIN] vt (14c) 1 a: to detect with the eyes b: to detect with other senses than vision 2: to recognize or identify as separate and distinct : DISCRIMINATE 3: to come to know or recognize mentally ~ vi: to see or understand the difference — dis-cerner \n — dis-cern-ible also dis-ern-able \-'är-na-bəl\ adj — dis-ern-ibly \-'är-ble\ adv

dis-cern-ing adj (ca. 1604) : revealing insight and understanding: DISCRIMINATING (*a ~ critic*) — dis-ern-ing-ly \-'är-nip-lev\ adv

dis-ern-ment \dis-'ärn-mənt, -ärz\ (1586) 1: the quality of being able to grasp and comprehend what is obscure : skill in discerning 2: an act of discerning *syn* DISCERNMENT, DISCRIMINATION, PERCEPTION, PENETRATION, INSIGHT. ACUMEN means a power to see what is not evident to the average mind. DISCERNMENT stresses accuracy (as in reading character or motives or appreciating art); DISCRIMINATION stresses the power to distinguish and select what is true or appropriate or excellent; PERCEPTION implies quick and often sympathetic discernment (as of shades of feeling); PENETRATION implies a searching mind that goes beyond what is obvious or superficial; INSIGHT suggests depth of discernment coupled with understanding sympathy; ACUMEN implies characteristic penetration combined with keen practical judgment.

dis-charge \('dis(h)-'chärj, 'dis(h)-\ vb [ME *discharagen*, fr. MF *des-charger*, fr. LL *discarricare*, fr. L *dis-* + LL *carriare* to load — more at CHARGE] vt (14c) 1: to relieve of a charge, load, or burden: a: UNLOAD b: to release from an obligation 2: to let go: clear out (the bus stopped to ~ passengers) (~ cargo) b: SHOOT (~ an arrow) c: to release from confinement, custody, or care (~ a prisoner) d: to give outlet or vent to: EMIT 3 a (1): to dismiss from employment (2): to release from service or duty (~ a soldier) b: to get rid of (as a debt or obligation) by performing an appropriate action (as payment) : FULFILL c: to set aside: ANNULL d: to order (a legislative committee) to end consideration of a bill in order to bring it before the house for action 4: to bear and distribute (as the weight of a wall above an opening) 5: to bleach out or remove (color or dye) in dyeing and printing textiles 6: to cancel the record of the loan of (a library book) upon return ~ vi 1: to throw off or deliver a load, charge, or burden 2 a: GO OFF, FIRE — used of a gun b: RUN *(some dyes ~)* c: to pour forth fluid or other contents *syn* see PERFORM — dis-charge-able \-'är-bal\ adj — dis-charge-e \('dis(h)-'chär-jē\ n — dis-charge-er \('dis(h)-'chär-ir, 'dis(h)-\ n

dis-charge \('dis(h)-'chärj, 'dis(h)-\ n (14c) 1 a: the act of relieving of something that oppresses: RELEASE b: something that discharges or releases; esp: a certification of release or payment 2: the state of being discharged or relieved 3: the act of discharging or unloading 4: legal release from confinement 5: a firing off 6 a: a flowing or issuing out (*a ~ of spores*); also: a rate of flow b: something that is emitted (a purulent ~) 7: the act of removing an obligation or liability 8 a: release or dismissal esp. from an office or employment b

: complete separation from military service 9 a: the equalization of a difference of electric potential between two points b: the conversion of the chemical energy of a battery into electrical energy

discharge lamp \n (1936) : an electric lamp in which discharge of electricity between electrodes causes luminosity of the enclosed vapor or gas or in which the luminosity of the enclosed gas is enhanced by photons

discharge tube \n (1898) : an electron tube which contains gas or vapor at low pressure and through which conduction takes place when a high voltage is applied

disci- — see DISC:

dis-ci-form \('dis(k)-fôrm\ adj (1830) : round or oval in shape

dis-ci-pile \('dis-i-pil\ n [ME, fr. OE *discipul* & OF *descipte*, fr. L. *LL* and L: *LL discipulus* follower of Jesus Christ in his lifetime, fr. L. *pupill*] (bed: 12c) 1: one who accepts and assists in spreading the doctrines of another: as a: one of the twelve in the inner circle of Christ's followers according to the Gospel accounts b: a convinced adherent of a school or individual 2 cap: a member of the Disciples of Christ founded in the U.S. in 1809 that holds the Bible alone to be the rule of faith and practice, usu. baptizes by immersion, and has a congregational polity *syn* see FOLLOWER — dis-ci-pleship \-'ship\ n

TEACHABLE 2: subject to or deserving discipline (~ offense)

dis-ci-pi-nar-i-an \('dis-i-pi-när-ē-n\ n (1639) : one who disciplines or enforces order — disciplinarian adj

dis-ci-plin-ar-y \('dis-i-pi-när-ē\ esp Brit *dis-a'-plin-z-rē* adj (1598) 1 a: of or relating to discipline: designed to correct or punish breaches of discipline (look ~ action) 2: of or relating to a particular field of study — dis-ci-plin-ar-ily \('dis-i-pi-när-ē-ē\ adv — dis-ci-plin-ar-y \-'nar-ē\ n

dis-ci-pline \('dis-i-plin\ n [ME, fr. OF & L: OF, fr. L *disciplina* teaching, learning, fr. *discipulus* pupil] (13c) 1: PUNISHMENT 2 obs: INSTRUCTION 3: a subject that is taught: a field of study 4: training that corrects, molds, or perfects the mental faculties or moral character 5 a: control gained by enforcing obedience or order b: orderly or prescribed conduct or pattern of behavior c: SELF-CONTROL 6: a rule or system of rules governing conduct or activity — dis-ci-plin-al \-'plin-äl\ adj

discipline vt -plined: -plin-ing (14c) 1: to punish or penalize for the sake of discipline 2: to train or develop by instruction and exercise esp. in self-control 3 a: to bring (a group) under control (~ troops) b: to impose order upon (the writer ~s and refines his style) *syn* see PUNISH, TEACH — dis-ci-pliner n

dis-ci-plined adj (14c) : marked by or possessing discipline (*a ~ mind*)

disc jockey \n (1941) : an announcer of a radio show of popular recorded music who often intersperses comments not related to the music

dis-claim \('dis-klim\ vb [ME *disclainen*, fr. AF *disclaimer*, fr. dis- + claimer to claim, fr. OF *clamer*] vi (15c) 1: to make a disclaimer 2 a: to disavow all part or share b: to utter denial ~ vi 1: to renounce a legal claim to 2: DENY, DISAVOW

dis-claimer \-'klā-mär\ n (15c) 1 a: a denial or disavowal of legal claim: relinquishment of or formal refusal to accept an interest or estate b: a writing that embodies a legal disclaimer 2 a: DENIAL, DISAVOWAL

dis-cri-mi-nation \('dis-kli-'mä-shən\ n (1592) : RENUNCIATION, DISAVOWAL

dis-cri-mat \('dis-kli-'mäts\ n (1935) : a relatively stable ecological community often including kinds of organisms foreign to the region and displacing the climax because of disturbance esp. by man

dis-close \('dis-kloz\ v [ME *disclosen*, fr. MF *desclouer*, stem of *desclo-udre* to disclose, fr. ML *descloudre* to open, fr. L *dis-* + *cludere* to close — more at CLOSE] (14c) 1 obs: to open up 2 a: to expose to view b: ARCHIC: HATCH c: to make known or public (demands that politicians ~ the sources of their income) *syn* see REVEAL — dis-closer n

dis-close-n, obs (1548) : DISCLOSURE

dis-clos-ing \('kloz-ing\ adj (1965) : being or using an agent (as a tablet or liquid) that contains usu. red dye that adheres to an stain and plaque

dis-clo-sure \('dis-klo-zhər\ n (1598) 1: the act or an instance of disclosure: EXPOSURE 2: something disclosed: REVELATION

dis-co \('dis(-)kō\ n, pl. discos (short for discotheque) (1964) 1: nightclub for dancing to live and recorded music often featuring flamboyant decor and special lighting 2: popular dance music characterized by hypnotic rhythm, repetitive lyrics, and electronically produced sounds

dis-co vi (1979) : to dance to disco music

dis-co — see DISC:

dis-co-gra-pher \('dis-käg-rä-fär\ n (1941) : one that compiles discographies

dis-co-gra-phy \-'fē\ n, pl. -phies [F *discographie*, fr. disc- + graphy] (1935) 1: a descriptive list of phonograph records by category, composer, performer, or date of release 2: the history of recorded music — dis-co-graph-i-cal \('dis-kä-graf-i-käl\ also dis-co-graph-i-kl\ adj

dis-cold \('dis-koid\ adj [LL *discoides* quoit-shaped, fr. Gk *diskoëidēs*] diskos disk \n (1794) 1: relating to or having a disk: as a of a composite floret situated in the floral disk b: of a composite flower : having only tubular florets 2: resembling a disk or discus: bat flat and circular

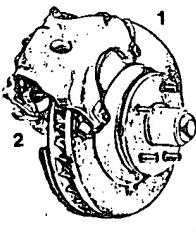
dis-co-dal \('dis-koid-əl\ adj (ca. 1706) of: resembling, or produced: disk

dis-co-dal cleavage \n (ca. 1909) : meroblastic cleavage in which a disk cell is produced at the animal pole of the zygote (as in bird eggs)

dis-co-lor-or \('dis-kal-ör\ vb [ME *discoloren*, fr. MF *descolorer*, fr. L *discolorari*, fr. L *discolor* of another color, fr. *dis-* + color color] vi 1: to alter or change the hue or color of ~ vi: to change color: *syn* FADE

dis-co-lor-ation \('dis-kal-ə-'rä-shən\ n (1642) 1: the act of discoloring: the state of being discolored 2: a discolored spot or former: STAIN

dis-com-bob-u-late \('dis-käm-'bäb-(y)-lät\ vt -lat-ed: -lat-ing [im- alter, of discompose] (ca. 1916) : UPSET, CONFUSE (the offensive discombobulated all the German defensive arrangements — Liebling) — dis-com-bob-u-lation \('dis-käm-'bäb-(y)-lätshən\ n



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